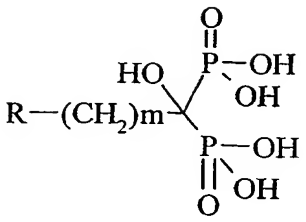
CLAIMS

1. A process for the preparation of diphosphonic acids of the general formula (I)

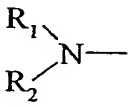


(I)

wherein

m is an integer from 1 to 8 and

R is a residue of formula



wherein R_1 and R_2 are independently selected from hydrogen or C_1-C_5alkyl, or

R is a 5- or 6 membered aromatic ring, optionally containing one or more heteroatoms selected from N, O, S,

by reaction of a carboxylic acid of the general formula (II)

$$R(CH_2)_mCOOH$$

(II)

wherein R and m are as defined above,

with a mixture of phosphorous acid and phosphorus oxychloride, in the absence of solvents and with a carboxylic acid: phosphorus oxychloride: phosphorous acid molar ratio of 1:2-4:8-12.

2. The process according to claim 1 wherein the carboxylic acid:phosphorus oxychloride: phosphorous acid molar ratio is 1:3:10.

3. The process according to claim 1 or 2 for the preparation of

diphosphonic acids wherein R is imidazolyl or pyridyl.

4. The process according to any one of claims 1 to 3 for the preparation of a diphosphonic acid selected from: ibandronic, risedronic and zoledronic acid.

5. Ibandronic acid monosodium salt in the amorphous form.

6. Salt according to claim 1 with a water content lower than 2% by weight.

7. Pharmaceutical compositions containing the salt of claims 5 or 6 in admixture with suitable excipients.

8. Process for the preparation of the salt of claims 5 or 6 comprising the salification of ibandronic acid with sodium hydroxide, carbonate or bicarbonate in an aqueous solution, followed by lyophilization or "spray-drying" of the resulting aqueous solution.